

Appendix I

#23 - Non-Traditional Nuclear Facilities

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NON-TRADITIONAL NUCLEAR FACILITIES

Issue

The Advisory Committee on External Regulation of the Department of Energy (DOE) Nuclear Safety (Advisory Committee) adopted a definition of “nuclear facility” considerably broader than DOE Orders and Rules and therefore would include many facilities not currently regulated in DOE as nuclear facilities. The breadth of the definition would include as nuclear facilities recommended for external regulation a variety of facilities not traditionally considered nuclear, such as accelerators (a separate issue paper addresses accelerators), fusion facilities (including Princeton and NIF), radiographic facilities (including DARHT, PHERMEX, and FXR), certain analytical laboratories (including calibration facilities such as Atlas, and RSI at NV), certain research laboratories, and certain weapon design and testing facilities.

Background

The definition of “nuclear facility” as used by the Advisory Committee is found at Endnote 7 to the Final Report at page 99:

The Committee has defined nuclear facilities generally, for its purposes, to include all operations that involve radioactive materials or the use of ionizing radiation. More precisely, we have taken nuclear facilities to include any facility or operation (activity) that involves radioactive materials or radiation sources such that a radiological hazard, or a perceived radiological hazard, exists or potentially exists to workers, the public, or the environment. There are other ways to define nuclear facilities. This one is intentionally broad.

This definition can be contrasted with the Department's current definition of “non-reactor nuclear facility” contained in DOE 5480.23 5.k:

those activities or operations that involve radioactive or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or the general public....

The difference in coverage between the two definitions is significant and accordingly increases the number of facilities recommended for external regulation. In addition to radiographic (non-ionizing), fusion, and calibration facilities, the definition taken literally could include every source of ionizing and non-ionizing radiation in the Department including, for example, computer workstations and their concomitant cathode ray tubes.

The Department's definition of nuclear facility, while currently under review in the Department's ongoing rulemaking on 10 CFR 830, is generally consistent with the Nuclear Regulatory Commission's (NRC) definition (although the DOE definition is broader because it

includes as nuclear materials elements that are not source, special nuclear, or by-product material as defined in the Atomic Energy Act (AEA). There exists no generally applicable regulatory scheme to regulate nuclear facility safety at these traditionally non-nuclear facilities. There are, however, generally applicable worker safety and environmental requirements that are applicable to these types of facilities, some of which the Department is already subject to such as the Clean Water Act, Clean Air Act, the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act, and one of which the Department is currently not subject to, the Occupational Safety and Health Act.

Consistent with the Secretary's 1993 decision that the Department should move to regulation by the Occupational Safety and Health Administration (OSHA), there should be no issue that all of these facilities should be included for external regulation of worker protection under OSHA. Further, there do not appear to be any gaps in regulatory jurisdiction under Federal and State environmental protection regulation. The only remaining issue is whether an external facility regulator ought to be empowered to regulate facility nuclear safety for these traditionally non-nuclear facilities.

Discussion

These traditionally non-nuclear facilities are not subject to regulation by NRC because NRC has no jurisdiction to regulate facilities or activities that do not involve source, special nuclear, or by-product material as defined in the AEA of 1954. Similarly, these facilities are not currently subject to oversight by the Defense Nuclear Facilities Safety Board. The issue that is raised is whether there would be added value by subjecting these facilities to an external nuclear safety facility regulator.

By definition, these facilities are not involved with nuclear materials that pose a traditional nuclear safety risk beyond risk to workers (e.g., no risk of criticality). The major risk associated with these facilities is radiation exposure to workers, and the existing OSHA regulatory structure applicable to the private sector could provide adequate external regulation of worker safety in those facilities. It therefore appears that there is no need to add an external facility nuclear safety regulator.

Facilities like DARHT or NIF that may use nuclear materials in sufficient quantity that a nuclear hazard could exist, should be subject to the same type of nuclear safety regulation as the other DOE nuclear facilities. Using that criterion, and applying the existing definition, a determination should be made on a case-by-case basis as to whether particular facilities should be deemed nuclear facilities for purposes of nuclear safety regulation. Where this is an issue, DOE should propose how particular facilities should be treated, but the external nuclear safety regulator should have the final authority to make the determination as to whether it has jurisdiction.

Proposed Resolution

Worker protection at these facilities should be subject to external regulation by OSHA. Environmental protection is adequately ensured by existing external regulatory structures. The existing DOE definitions of nuclear facilities and activities provide an adequate basis to determine on a case-by-case basis whether external regulation of particular facilities is appropriate.

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